



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,681	09/12/2003	Ihor S. Diakunchak	2003P13117US	7361

7590 08/24/2004

Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT PAPER NUMBER

3745

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/661,681

Applicant(s)

DIAKUNCHAK, IHOR S.

Examiner

Christopher Verdier

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 9-12, 14, 17 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 8, 13, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9-12-03</u> | 6) <input type="checkbox"/> Other: ____  |

***Information Disclosure Statement***

The information disclosure statement filed September 12, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The foreign reference GB 2,381,048 only includes the abstract and is missing all other pages. The information referred in the foreign reference GB 2,381,048 to therein has not been considered.

***Specification***

The disclosure is objected to because of the following informality: Appropriate correction is required.

On page 2, line 24, "peaning" should be changed to -- peening --.

***Examiner's Suggestion to Claim Language***

The following is a suggestion to improve the clarity and precision of the claims:

In claim 10, line 2, "a" (last occurrence) may be changed to -- the --.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3745

Claims 1-3, 9-11, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Salisbury 2,314,289 (figures 1-4). Note the sealing system for reducing a gap between a tip of a shrouded turbine blade 12/34 and a stationary shroud 10/27/30 of a turbine engine, comprising: a turbine blade assembly 12/34 having at least one stage formed from a plurality of shrouded turbine blades 12/34 (note turbine shroud 19/35), at least one seal land 21/22/24/25 or 36/38/39/40 coupled to at least one shrouded turbine blade, the at least one seal land extending from a tip of the at least one shrouded turbine blade toward the stationary shroud of the turbine engine and having a curved configuration, and the at least one seal land is adapted to straighten from a curved resting position to an operating position where a tip of the at least one seal land is closer to the stationary shroud of the turbine engine than when the turbine engine is in a resting position. At least one protrusion (unnumbered; to the left of 30 in figure 4) extends from the stationary shroud toward the turbine blade assembly, where the at least one protrusion extends circumferentially about an axis of rotation of the turbine blade assembly. The at least one seal land is curved into a gas flow.

Claims 1 and 9 are also rejected under 35 U.S.C. 102(b) as being anticipated by Soviet Union Patent 779,592 (figures 1-3). Note the sealing system for reducing a gap between a tip of a shrouded turbine blade 1 and a stationary shroud 7 of a turbine engine, comprising: a turbine blade assembly 1 having at least one stage formed from a plurality of shrouded turbine blades 1 (note turbine shroud 4), at least one seal land 5 coupled to at least one shrouded turbine blade, the at least one seal land extending from a tip of the at least one shrouded turbine blade toward the stationary shroud of the turbine engine and having a curved configuration, and the at least

Art Unit: 3745

one seal land is adapted to straighten from a curved resting position to an operating position where a tip of the at least one seal land is closer to the stationary shroud of the turbine engine than when the turbine engine is in a resting position. The at least one seal land is curved into a gas flow.

Claims 1 and 9 are also rejected under 35 U.S.C. 102(b) as being anticipated by Rotter 838,358. Note the sealing system for reducing a gap between a tip of a shrouded turbine blade 3 and a stationary shroud 6 of a turbine engine, comprising: a turbine blade assembly 3 having at least one stage formed from a plurality of shrouded turbine blades 1 (note turbine shroud 7), at least one seal land 8, 9 coupled to at least one shrouded turbine blade, the at least one seal land extending from a tip of the at least one shrouded turbine blade toward the stationary shroud of the turbine engine and having a curved configuration, and the at least one seal land is adapted to straighten from a curved resting position to an operating position where a tip of the at least one seal land is closer to the stationary shroud of the turbine engine than when the turbine engine is in a resting position. The at least one seal land is curved into a gas flow.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3745

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salisbury 2,314,289 in view of either (Soviet Union Patent 1,159,970 or Huber 3,867,060). Salisbury (figures 1-4) discloses a sealing system and a turbine engine substantially as claimed as set forth above, including at least one seal land 21/22/24/25 or 36/38/39/40, but does not disclose that the seal land comprises a first seal land and a second seal land, with the first seal land positioned upstream of a protrusion and the second seal land positioned downstream of the protrusion.

Soviet Union Patent 1,159,970 (figure 1) shows a turbine having blades 1 with a shroud 3 having a first seal land 17 and a second seal land 17, with the first seal land positioned upstream of a protrusion 4 and the second seal land positioned downstream of the protrusion 4, for the purpose of providing an increased sealing effect between the seal lands and a stationary shroud 8. Huber shows a turbine having blades 21 with an unnumbered shroud having a first seal land 23 and a second seal land 23, with the first seal land positioned upstream of a protrusion 29 and the second seal land positioned downstream of the protrusion 29, for the purpose of providing an increased sealing effect between the seal lands and a stationary shroud 27.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the sealing system and a turbine engine of Salisbury such that the seal land comprises a first seal land and a second seal land, with the first seal land positioned upstream of a protrusion and the second seal land positioned downstream of the protrusion, as taught by either Soviet Union Patent 1,159,970 or Huber 3,867,060, for the purpose of providing an increased sealing effect between the seal lands and the stationary shroud.

Art Unit: 3745

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salisbury 2,314,289 in view of Brandon 5,234,318. Salisbury (figures 1-4) discloses a sealing system and a turbine engine substantially as claimed as set forth above, including at least one seal land 21/22/24/25 or 36/38/39/40, that is welded at 23 or 37 to the tip of shrouded turbine blade, but does not disclose that the seal land is brazed to the tip of the shrouded turbine blade.

Brandon (figures 1 and 5-9) shows a turbine blade 12 with a shroud 18, which has a seal land 30 attached to the tip of the shrouded turbine blade. Column 3, lines 15-19 teach that the seal land may be attached by either brazing or welding, as an equivalent means of attaching the seal land to the tip of the shrouded turbine blade, for the purpose of securely attaching the seal land to the tip of the shrouded turbine blade.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the sealing system and a turbine engine of Salisbury such that the seal land is brazed to the tip of the shrouded turbine blade, as taught by Brandon, for the purpose of securely attaching the seal land to the tip of the shrouded turbine blade.

#### ***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stine is cited to show a turbine seal strip attached to a blade by brazing.

Bailey is cited to show turbine blade tip seal with plural seal lands and plural protrusions.

Art Unit: 3745

*Allowable Subject Matter*


Claims 5, 7-8, 13, and 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (703)-308-2638. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.  
August 20, 2004

  
Christopher Verdier  
Primary Examiner  
Art Unit 3745